

WHAT IS CLAIMED IS:

1. A method of water analysis for detecting the presence of microorganisms in a water sample, comprising the step of staining the microorganisms with potassium permanganate (KMnO_4).

5 2. A method of water analysis for detecting the presence of microorganisms in a water sample, comprising the steps of:

providing a bio-membrane as a filter;

filtering out the microorganisms in the water sample, using the bio-membrane;

10 cultivating the microorganisms on the bio-membrane;

staining the microorganisms on the bio-membrane with potassium permanganate (KMnO_4);

rinsing the bio-membrane with purified deionized water; and

performing a colony count for readable microorganisms on the
15 bio-membrane.

3. The method of water analysis according to claim 2, wherein the pore

size of the bio-membrane is about 0.3 μm in diameter.

4. The method of water analysis according to claim 2, wherein the water sample is filtered through the bio-membrane by a vacuum filtration technique.

5 5. The method of water analysis according to claim 2, wherein the microorganisms are cultivated on the bio-membrane at about 30°C, using 2 ml of nutrient solution.

6. The method of water analysis according to claim 2, wherein the concentration of KMnO_4 is about 0.02 M (mole per liter).

10 7. The method of water analysis according to claim 2, wherein the microorganisms on the bio-membrane are stained with KMnO_4 for about 10 to 30 seconds and then the bio-membrane is rinsed with purified deionized water.

8. A method of water analysis for separately detecting the presence of microorganisms in a plurality of water samples, comprising the steps of:

15 providing a plurality of bio-membranes as filters;

filtering out the microorganisms in each of the water samples, using a corresponding bio-membrane, separately;

cultivating the microorganisms on different bio-membranes for different time period;

staining the microorganisms on each of the bio-membranes with potassium permanganate (KMnO_4);

5 rinsing each of the bio-membranes with purified deionized water; and

performing a colony count for readable microorganisms on each of the bio-membranes.

9. The method of water analysis according to claim 8, wherein the pore size of the bio-membrane is about 0.3 μm in diameter.

10 10. The method of water analysis according to claim 8, wherein each of the water samples is filtered through a corresponding bio-membrane by a vacuum filtration technique.

11. The method of water analysis according to claim 8, wherein the microorganisms are cultivated on each of the bio-membranes at about 30°C,
15 using 2 ml of nutrient solution.

12. The method of water analysis according to claim 8, wherein the microorganisms on each of the bio-membranes are cultivated for 24, 48, 72,

and 96 hours, respectively.

13. The method of water analysis according to claim 8, wherein the concentration of KMnO_4 is about 0.02 M (mole per liter).

14. The method of water analysis according to claim 8, wherein the
5 microorganisms on each of the bio-membrane are stained with KMnO_4 for about 10 to 30 seconds.

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